

RESS-LOESCHKE et al., Ser. No. -09/806,876

COMPLETE LISTING OF ALL CLAIMS IN THE APPLICATION

1. (currently amended) An isolated nucleic acid ~~sequence~~ which codes for a polypeptide having nitrilase activity, selected from the group consisting of:
 - a) a nucleic acid ~~having the sequence~~ depicted in SEQ ID NO: 1,
 - b) a nucleic acid ~~sequences which are derived from the nucleic acid sequence depicted in SEQ ID NO: 1 which codes for the polypeptide depicted in SEQ ID NO: 2 as a result of the degeneracy of the genetic code,~~
 - c) ~~derivatives of the~~ a nucleic acid ~~sequence depicted in SEQ ID NO: 1, which codes for a polypeptides having the amino acid sequences depicted in SEQ ID NO: 2 and have at least 97% homology to SEQ ID NO: 2 at the amino acid level, with negligible reduction in the enzymatic action of the polypeptides.~~
2. (currently amended) An isolated ~~amino acid sequence~~ polypeptide encoded by a nucleic acid ~~sequence~~ as claimed in claim 1.
3. (currently amended) An isolated ~~amino acid sequence~~ polypeptide as claimed in claim 2, encoded by the nucleotide sequence depicted in SEQ ID NO: 1.
4. (currently amended) A nucleic acid construct comprising a nucleic acid ~~sequence~~ as claimed in claim 1, the nucleic acid ~~sequence~~ being linked to one or more regulatory signals.

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5. (currently amended) A vector comprising a nucleic acid sequence as claimed in claim 1.

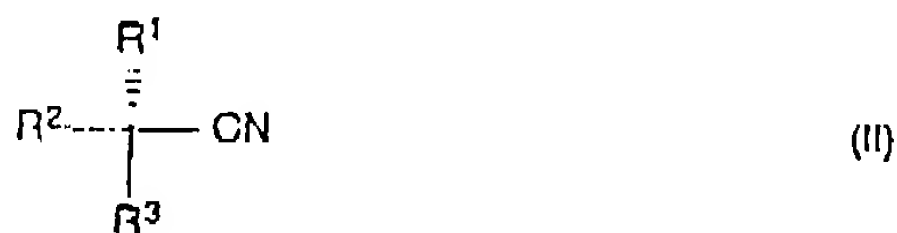
6. (currently amended) A transformed microorganism comprising at least one nucleic acid sequence as claimed in claim 1.

7. (currently amended) A transformed microorganism comprising at least one nucleic acid sequence as claimed in claim 1.

8. (currently amended) A process for preparing chiral carboxylic acids of the general formula I



which comprises converting the corresponding racemic nitriles of the general formula II



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in the presence of an isolated polypeptide or protein having the amino acid sequence of SEQ ID NO: 2 as claimed in claim 2, and where at least 25 mmol of nitrile are converted per h and per mg of protein, or 25 mmol of nitrile are converted per h and per g of dry weight, into the chiral carboxylic acids, where the substituents and variables in the formulae I and II have the following meanings:

* an optically active center

R^1 , R^2 , R^3 independently of one another hydrogen, substituted or unsubstituted, branched or unbranched C_1 - C_{10} -alkyl, C_2 - C_{10} -alkenyl, substituted or unsubstituted aryl, hetaryl, OR^4 or NR^4R^5 and where the radicals R^1 , R^2 and R^3 are always different.

R^4 hydrogen, substituted or unsubstituted, branched or unbranched C_1 - C_{10} -alkyl, C_2 - C_{10} -alkenyl, C_1 - C_{10} -alkylcarbonyl, C_2 - C_{10} -alkenylcarbonyl, aryl, arylcarbonyl, hetaryl or hetarylcarbonyl,

R^5 hydrogen, substituted or unsubstituted, branched or unbranched C_1 - C_{10} -alkyl, C_2 - C_{10} -alkenyl, aryl or hetaryl.

9. (original) A process as claimed in claim 8, wherein one of the substituents R^1 , R^2 or R^3 is OR^4 .

10. (previously presented) A process as claimed in claim 8, wherein one of the substituents R^1 , R^2 or R^3 is aryl.

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11. (previously presented) A process as claimed in claim 8, wherein the process is carried out in an aqueous reaction solution at a pH between 4 and 11.

12. (previously presented) A process as claimed in claim 8, wherein from 0.01 to 10% by weight of nitrile or from 0.01 to 10% by weight of a corresponding aldehyde or ketone and from 0.01 to 10% by weight of hydrocyanic acid are reacted in the process.

13. (previously presented) A process as claimed in claim 8, wherein the process is carried out at a temperature between 0°C and 80°C.

14. (previously presented) A process as claimed in claim 8, wherein the chiral carboxylic acid is isolated from the reaction solution in yields of from 60 to 100% by extraction or crystallization or extraction and crystallization.

15. (previously presented) A process as claimed in claim 8, wherein the chiral carboxylic acid has an optical purity of at least 90%.